UNITED STATES PATENT APPLICATION

FOR

SYSTEM, METHOD, AND APPARATUS FOR EVALUATING A PERSON'S ATHLETIC ABILITY

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SPECIFICATION

TITLE OF INVENTION

SYSTEM, METHOD, AND APPARATUS FOR EVALUATING A PERSON'S ATHLETIC ABILITY

FIELD OF THE INVENTION

[0001]   The present invention relates to the field of physical activity including

sports. More particularly, the present invention relates to a field of identification of

physical activity more suitable for an individual.

BACKGROUND OF THE INVENTION

[0002]   The problem of obesity among adults and more pertinently among

children in America has been widely publicized. In California alone, it is estimated that

almost 7 million (77 percent) youths physically unfit, and nearly 3 million (30 percent)

are overweight. A CDC study showed that nearly half of American youths aged 12 to 21

years are not vigorously active on a regular basis. The CDC has identified two of the

factors preventing youths from participating in regular physical activity: (1) a lack of

opportunity to engage in enjoyable activities that promote the youths' confidence in their

abilities, and (2) a limitation on the range of extracurricular programs that meet the needs

and interests of specific populations, such as racial minorities, females and low-income

groups.

[0003]   These factors may be attributed to the lack of information on and access to

a wide range of sporting activities. In many cases, children are introduced only to one or

two sports during their formative years. Typically these are the sports that are prevalent

within their geographic region and among their socio-economic peers and may be sports

for which they, as individuals are not well suited. Too often performance based criteria

eliminates young people's participation in high school sports long before they graduate

leading to a negative experience with sporting activities and a diminished self-confidence

in their athletic abilities. At best, the individual will take the considerable initiative to

seek out other sports, but more likely, the individual will eventually discontinue

participation in sports all together.

[0004]   It is also true that our society is becoming more attuned to the need for

lifelong sporting and physical fitness activity to maintain health throughout ones life and

independent living as one ages. Parents are motivated to create positive experiences for

their children and to instill health-promoting habits at an early age. An increasing

number of older adults and seniors are becoming aware of the benefits of physical

activity and are beginning to seek out activities suitable to their physical capabilities.

In academic and career domains, evaluation and guidance are commonly accepted

practices. Children are tested regularly on their academic performance and aptitude in

order to direct their academic pursuits; youths and adults undergo career skills

assessments to provide career guidance and performance evaluations; the military uses

sophisticated leadership performance evaluations to help in making informed decisions.

[0005]   But in sports, individuals are largely left to fend for themselves in

understanding their natural athletic talents, as well as in realistically assessing their

progress in athletic pursuits. If any assessment is available, it is likely to be based on a

coach's subjective opinion without reference to a suitable comparison group. This

approach can prove highly unreliable and is not predictive. It will most likely be based

on the coach's sports-specific experience and a very limited evaluation of the individual's

physical capabilities. If an individual is fortunate enough to gain the attention of a sports

organization, they may receive more advice on their capabilities, but only for that

particular sport.

[0006]   Therefore, a need exists for a system based on scientific and objective data

that identifies which sports an individual is best suited. The system should enable

individuals of all ages to make informed decisions about which sports to participate in

based on insights into their physical and mental capabilities, as well as their personal

preferences and interests. A primary purpose of the present invention is to solve these

needs and provide further, related advantages.

BRIEF DESCRIPTION OF THE INVENTION

[0007]   A system for evaluating a person's athletic ability has a server or a

computer system, and several testing locations. The server or computer system includes

a database, a central processing unit, and a memory. The database stores results of tests

previously subjected to a set of athletes from different physical activities. Each testing

location includes testing tools used for subjecting the person to the tests. The results of

the tests of the person are temporarily stored in the memory. The central processing unit

compares the individual's tests results stored in the memory with the results in the

database, and identifies at least one specific physical activity more compatible with the

person based on the comparison.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008]   The accompanying drawings, which are incorporated into and constitute a part of this specification, illustrate one or more embodiments of the present invention and, together with the detailed description, serve to explain the principles and implementations of the invention.

[0009]   In the drawings:

FIG. 1 is a diagram schematically illustrating a system for evaluating a person's athletic ability in accordance with one embodiment of the present invention.

FIG. 2 is a diagram schematically illustrating a system for evaluating a person's athletic ability in accordance with another embodiment of the present invention.

FIG. 3 is a diagram schematically illustrating a computer system suitable for implementing aspects of the present invention.

FIG. 4 is a flow diagram illustrating a method for evaluating a person's athletic ability in accordance with one embodiment of the present invention.

FIG. 5 is a table illustrating an example of test results on a set of athletes in four different physical activities with the test results of a subject in accordance with one embodiment of the present invention.

FIG. 6 is a graph illustrating an example of test results on a set of sprinters, long distance runners, weightlifters, basketball centers, in accordance with one embodiment of the present invention.

FIG. 7 is a graph illustrating an example of identifying a physical activity more compatible with a test subject in accordance with one embodiment of the present invention.

DETAILED DESCRIPTION

[0010]   Embodiments of the present invention are described herein in the context

of a system, method, and apparatus for evaluating a person's athletic ability. Those of

ordinary skill in the art will realize that the following detailed description of the present

invention is illustrative only and is not intended to be in any way limiting. Other

embodiments of the present invention will readily suggest themselves to such skilled

persons having the benefit of this disclosure. Reference will now be made in detail to

implementations of the present invention as illustrated in the accompanying drawings.

The same reference indicators will be used throughout the drawings and the following

detailed description to refer to the same or like parts.

[0011]   In the interest of clarity, not all of the routine features of the

implementations described herein are shown and described. It will, of course, be

appreciated that in the development of any such actual implementation, numerous

implementation-specific decisions must be made in order to achieve the developer's

specific goals, such as compliance with application- and business-related constraints, and

that these specific goals will vary from one implementation to another and from one

developer to another. Moreover, it will be appreciated that such a development effort

might be complex and time-consuming, but would nevertheless be a routine undertaking

of engineering for those of ordinary skill in the art having the benefit of this disclosure.

[0012]   In accordance with one embodiment of the present invention, the

components, process steps, and/or data structures may be implemented using various

types of operating systems (OS), computing platforms, firmware, computer programs,

computer languages, and/or general-purpose machines. The method can be run as a

programmed process running on processing circuitry. The processing circuitry can take

the form of numerous combinations of processors and operating systems, or a stand-alone

device. The process can be implemented as instructions executed by such hardware,

hardware alone, or any combination thereof. The software may be stored on a program

storage device readable by a machine.

[0013]   In addition, those of ordinary skill in the art will recognize that devices of

a less general purpose nature, such as hardwired devices, field programmable logic

devices (FPLDs), including field programmable gate arrays (FPGAs) and complex

programmable logic devices (CPLDs), application specific integrated circuits (ASICs), or

the like, may also be used without departing from the scope and spirit of the inventive

concepts disclosed herein.

[0014]   In accordance with one embodiment of the present invention, the method

may be implemented on a data processing computer such as a personal computer,

workstation computer, mainframe computer, or high performance server running an OS

such as Solaris® available from Sun Microsystems, Inc. of Palo Alto, California,

Microsoft® Windows® XP and Windows® 2000, available form Microsoft Corporation

of Redmond, Washington, or various versions of the Unix operating system such as

Linux available from a number of vendors and other sytems not yet available. The

method may also be implemented on a multiple-processor system, or in a computing

environment including various peripherals such as input devices, output devices,

displays, pointing devices, memories, storage devices, media interfaces for transferring

data to and from the processor(s), and the like. In addition, such a computer system or

computing environment may be networked locally, or over the Internet.

[0015]   FIG. 1 illustrates a block diagram of a system 100 for testing and

evaluating a person's athletic ability in accordance with one embodiment of the present

invention. A person 102 is subjected to several tests at a testing location 104. The tests

may include but are not limited to physical, physiological, and psychological tests.

Examples of the type of tests are described in more details below in FIG. 5. The testing

location 104 may also comprise a client 106 coupled to a printer 108. The client 106 may

include a computing system and a display, such as a monitor (not shown). The results of

the tests of the person 102 are entered on the client 106 and submitted through the

internet 110 to a server or computer system 112 located at an analysis location 114. The

server 112 is described in more detailed in FIG. 3. The server 112 analyses and compares

the data received from the client 106 with a database (not shown) coupled to server 112.

The database contains the results of the same tests subjected on a set of athletes from

different sports, sports positions, disciplines, and physical activities. The analysis

determines which physical activity the person 102 has more aptitude for based on the

results of his/her tests at the testing location. The analysis is described in more details

below in FIG. 4.

[0016]   In accordance with one embodiment, the results of the analysis performed

by the server 112 may be downloaded at the client 106. The person 102 may be able to

view his/her results of the analysis on the client's display monitor or obtain a hardcopy of

his/her results from the printer 108.

[0017]   In accordance with another embodiment of the present invention, the

testing location 104 may submit the results of the tests for analysis to the analysis

location 114 via other means of transportation, such as mail or fax (116). Those of

ordinary skills in the art will recognize that there exists many other ways, electric or non-

electric means, of submitting the results of the tests for analysis to the analysis location

114. The results of the analysis may also be sent directly (118) via mail or other means

to the person 102 mailing address.

[0018]   FIG. 2 illustrates a system 200 for evaluating a person's athletic ability in

accordance with another embodiment of the present invention. A person 202 may be

tested at any of the plurality of testing locations 204a, 204b, 204c, 204d. Each testing

location 204a, 204b, 204c, 204d includes respectively a set of tools 206a, 206b, 206c,

206d for testing the person 202. For illustration purposes, the tools 206 may include a

stop watch, a scale with body height measurement, a wobble board, a yardstick, a grip, a

standing long jump test mat, a pull-up bar, etc. Other equipment may also be needed.

The results of the tests of the person 202 may be submitted by the testing facility that

tested the person 202 to the analysis center 208 via means described in FIG. 1. The

results of the analysis may be sent directly to the person 202 or to any of the location 104.

[0019]   FIG. 3 depicts a block diagram of a server 112 or computer system 300

suitable for implementing aspects of the present invention. As shown in FIG. 3,

computer system 300 includes a bus 302 which interconnects major subsystems such as a

central processor 304, a system memory 306 (typically RAM), an input/output (I/O)

controller 308, an external device such as a display screen 310 via display adapter 312,

serial ports 314 and 316, a keyboard 318, a fixed disk drive 320, a floppy disk drive 322

operative to receive a floppy disk 324, and a CD-ROM player 326 operative to receive a

CD-ROM 328. Many other devices can be connected, such as a pointing device 330

(e.g., a mouse) connected via serial port 314 and a modem 332 connected via serial port

316. Modem 332 may provide a direct connection to a remote server via a telephone link

or to the Internet via a POP (point of presence). Alternatively, a network interface

adapter 334 may be used to interface to a local or wide area network using any network

interface system known to those skilled in the art (e.g., Ethernet, xDSL, AppleTalkTM).

[0020]   Many other devices or subsystems (not shown) may be connected in a

similar manner. Also, it is not necessary for all of the devices shown in FIG. 3 to be

present to perform or operate the present invention, as discussed below. Furthermore, the

devices and subsystems may be interconnected in different ways from that shown in FIG.

3. The operation of a computer system such as that shown in FIG. 3 is readily known in

the art and is not discussed in detail in this application, so as not to overcomplicate the

present discussion. Code to implement the present invention may be operably disposed

in system memory 306 or stored on storage media such as fixed disk 320, floppy disk 324 or CD-ROM 328.

[0021]   The computer system of FIG. 3 includes a database (not shown) stored in system memory 306 or stored on storage media such as fixed disk 320, floppy disk 324 or CD-ROM 328. The database includes results of the same tests performed on a set of athletes from different fields of sports. For example, the database may include results of physical, physiological, and mental tests of a set of athletes from different sports, sports positions, disciplines, and physical activities such as: a sprinter, distance runner, weightlifter, and a basketball center as illustrated in FIG. 5. The previously cited disciplines are for illustration purposes only.

[0022]   The computer system 300 receives the test results of a person and compares them with the results of the same tests of a set of athletes from different sports, sports positions, disciplines, and physical activities. The central processor 304 processes the data and correlates at least one sport for which the person has the most aptitude for based on the data in the database. This database may be developed by testing several athletes from the same sport, sports position, discipline, and physical activity or from different sports, sports positions, disciplines, and physical activities. The database may also be updated periodically for accuracy by testing another set of athletes or the same set of athletes.

[0023]   FIG. 4 is a flow diagram illustrating a method for evaluating a person's

athletic ability in accordance with one embodiment of the present invention. At 402, a

person is subjected to a set of tests at a testing location. The tests may include

physiological tests, physical activity tests, and psychological tests. Those of ordinary

skills in the art will recognize that other variables and/or criteria based on the subject may

also be taken into consideration in the present analysis.

[0024]   The physiological tests may include, but are not limited to, a resting heart

rate (RHR) test, a height test, a weight test, skinfold tests, a body composition test, bone

diameter tests, muscle girth tests, and limb length tests.

[0025]   The resting heart rate (RHR) test is a test measuring the resting heart rate

(RHR) of the subject. The subject is first seated quietly for five minutes. The RHR may

be obtained between the fourth and fifth minute. The RHR may be obtained either by

using a heart rate monitor attached to the chest strap or using a stop watch to count the

number of heart beats in 15 seconds.

[0026]   The height test is a test measuring the height of the subject to the nearest

1/8 of an inch. The height test may be achieved using a medical scale with a body height

determination tool. As the tool is brought in contact with the most superior part of the

head, the subject is instructed to take a deep breath and stretch up to their full height

while maintaining a flat-footed stance. No shoes or socks should be worn.

[0027]   The body weight test is a test measuring the weight of the subject to the

nearest ¼ of a pound. A calibrated medical scale may be used with the subject standing

quietly on the scale.

[0028]   The skinfold tests are tests measuring the skinfolds of the subject at

different sites on the body of the subject. For example, a skinfold may be measured at

the following non-limiting locations: triceps, subscapular, suprailium, and calf. A

skinfold caliper to measure to the skinfold. A measuring tape may be used to help

determine the skinfold location. Those of ordinary skills in the art will recognize that

other tools may also be used for the measuring the skinfold of the subject.

[0029]   The body composition test is a test that measures the fat mass and fat-free

mass of the subject's body. The body composition is determined using several of the

skinfold measurements and established formulas. The body composition is another

indicator of potential ability to participate in a certain sport or activity. Generally the

body is considered to be composed of two major components: fat mass or all the adipose

in the body and fat-free mass or all other tissues except adipose. Fat-free mass is

therefore composed of muscle, bone and all other tissues of the body. Both of these

variables can be expressed as a percent of total body weight. Generally, many athletes

have a less than normal percent of body fat or %fat. The average body fat for males is

about 15%. For the example, athletes' values for %fat for a sprinter, a distance runner, a

weightlifter and a basketball center would be respectively 6, 8, 9, and 15%.

[0030]   The bone diameter tests are tests that measure the bone diameters at

different locations on the body of the subject. For example, the bone diameter may be

measured at the following non-limiting locations: humerous breath, knee breath,

biacromial breath, and hip breath. A small sliding caliper may be used for the bone

diameter test. Those of ordinary skills in the art will recognize that other tools may also

be used for measuring bone diameters.

[0031]   The muscle girth tests are tests that measure the girth of the muscle at

different locations on the body of the subject. For example, the muscle girth may be

measured at the following non-limiting locations: flexed biceps and calf. A measuring

tape may be used for the muscle girth test. Those of ordinary skills in the art will

recognize that other tools may also be used for the measuring the girth of muscles.

[0032]   The limb length tests are tests that measure the length of different limbs

and body parts on the body of the subject. For example, the limb length may be

measured at the following non-limiting locations: hand length, arm span, and leg length.

A measuring tape or yardstick may be used for a limb length test. Those of ordinary

skills in the art will recognize that other tools may also be used for the measuring the

length of the different limbs or body parts.

[0033]   The physical activity tests may include, but are not limited to, a wobble

board test, a hand speed coordination test, a grip strength test, a vertical jump test, a

standing long jump test, a sit and reach test, a foot speed coordination test, a pull-up test,

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an abdominal strength test, a 25-meter sprint test, a one-turn agility run test, and a

cardiovascular endurance test.

[0034]   The wobble board test is a test that measures the balancing capability of

the subject by counting the number of times the ends of a wobble board touch the ground

during a 30-second period. The subject stands flat-footed on the wobble board with feet

on marked places at the ends of the wobble board. The subject is informed to keep the

ends of the wobble board from touching the ground while attempting to balance the

wobble board.

[0035]   The hand speed coordination test is a test that measures the hand speed

coordination of the subject. A yardstick and a normal height desk or table may be used

for the above test. The subject first stands bending over the edge of the table or desk with

his/her dominant hand forearm flat on the edge of the desk or table. The subject then

places the opposite hand on their dominant hand forearm to assist in keeping the forearm

stationary. The subject's little finger side of hand is flat on and just at the edge of the

desk or table. The subject's fingers are extended and thumb is pointing up ward and at a

90-degree angle to the fingers. The yardstick is held perpendicular to the floor so that the

end is even with the top of the index finger and so that its width is perpendicular to the

palm of the hand. The one-inch end is at the bottom of the yardstick. The yardstick is

positioned (2-4 inches from the palm) so that when the subject brings the thumb and

fingers together it will be caught. The subject is instructed to watch their hand and the

end of the yardstick and to catch the yardstick as quick as possible by moving only their

fingers and thumb when they see the yardstick move. The yardstick is dropped between

1-5 seconds after the subject is told the yardstick will be dropped. The yardstick is

dropped and the number of inches the yardstick drops is recorded at the top of the index

finger.

[0036]   The grip strength test is a test that measures the subject's strength of the

grip. A grip or hand dynamometer may be used for this test. In this test, the subject

stands looking straightforward. The grip size is adjusted so that the middle finger's (third

digit) second phalanx is at approximately a right angle when gripping the dynamometer.

The dynamometer is adjusted by slipping off the movable handle and repositioning it.

The subject's forearm can be in any elbow position between 90 and 180 degrees (right

angle to straight). The subject's wrist should be at its mid position. The subject then

squeezes maximally and quickly for approximately three seconds.

[0037]   The vertical jump test is a test that measures the maximal vertical jump

height of the subject. A Vertec slat/vain style may be used for the above test. In this test,

the standing reach height is determined by having the subject stand flat-footed and

reaches as high as possible with the dominant hand. The maximal vertical jump height is

then determined. The maximum vertical jump is calculated by subtracting the standing

reach height from maximal vertical jump height.

[0038]   The standing long jump test is a test that measures the distance of a

subject's long jump. A standing long jump test mat may be used. The subject stands

with toes just behind a take-off line, swings the arms backwards, bends knees and hips,

and then jumps forward as far as possible. The distance from the take-off line to the heel

or any other part of the body that touches the floor nearest the take-off line is measured.

[0039]   The sit and reach test measures the general flexibility of the subject. This

test may be performed using a sit and reach box. With no shoes worn, the subject sits

with both feet flat against the sit and reach box. The subject performs three forward bobs

as if trying to touch the toes. Keeping the knees straight, the subject slowly leans forward

as far as possible and pushes the sliding scale of the sit and reach box with the fingertips

of both hands as far forward as possible. The subject must keep hands and fingertips one

on top of the other with the palms facing down. The fingertips of one hand should never

reach beyond the other during the past. This test measures the distance the sliding scale

is pushed from the edge of the box to the nearest 1/4 inch. The scale on the sit and reach

box will be the same one in all tests.

[0040]   The foot speed coordination test is a test that measures the subject's

agility. An agility ladder with 10 slats inside of slats 16 7/8 in apart, having a total length

first to last slat of 14 ft may be used for this test. A stopwatch and a tape measure may

also be used. The agility ladder is stretched to its complete length. The start line one

yard from the outside edge of the first slat is marked. The finish line one-yard from the

outside edge of the last slat is also marked. The total length from start to finish line is 20

ft. The subject stands with one foot just behind the starting line. A staggered foot

position is to be utilized at the start. The subject can not use a crouched start, such as in

American football or as if starting a 100 meter sprint. The tester stands at the finish line. At the signal of the tester, the subject must cover the length of the ladder by placing first one foot and then the other between each of the slats. For example, the right foot is first placed between the first set of slats and then with the right foot on the ground, the left foot is placed between the first set of slats. Then the right foot and again the left foot is placed between the next set of slats this process is continued until the entire length of a ladder is completed and the subject crosses the finish line. The tester stops the stop watch when the torso of the subject passes the finish line and also records the number of times if any that a foot hits or touches a slat.

[0041]   The pull-up test measures the number of complete pull-up performed. A pull-up bar may be used for this test. The bar should be high enough so that the arms and legs are fully extended and feet are not touching the floor. An overhand grip (palms facing forward) with hands slightly wider than shoulder width is utilized. The subject is instructed to start the test from an arm fully extended position and that the chin must be placed over the bar for a successful pull-up. The subject is instructed that the arms must be fully extended between each repetition. The subject is instructed that the legs (hips and knees) must remain straight throughout the test. The tester may assist the subject to the initial starting position on the bar.

[0042]   The abdominal strength test is a test measuring the number of stages successfully completed by the subject. One each of a 2.5-kg (5.5 lb) and a 5 kg (11-lb) weight plates and a gym mat may be used to perform the test. For all stages, the starting

position is lying on the back with the feet flat on the floor and a 90-degree angle at the knees with no shoes worn. The feet should be comfortably apart (approximately hip width apart). The subject's feet are not held and the subject is allowed up to 3 attempts for all stages. All movements are to be performed in a smooth and controlled manner.

[0043]   A stage is considered unsuccessful if: the subject moves either foot partially or totally off the floor, the subject moves the arms from the stage's testing position, the subject throws their arms or head forward in a jerking manner, the subject lifts hips off of the floor, the subject moves the knees from the 90 degree angle, or the subject is unable to complete the testing movement.

[0044]   In stage one, the subject places the palms of both hands on the same side thighs (right hand on right thigh and left hand on left thigh) with the subject's arms straight. The subject moves forward in a crunching movement until the fingers are touching the patellas (knee caps).

[0045]   In stage two, the subject places the palms of both hands on the same side thighs with the subject's arms straight. The subject moves forward in a crunching movement until both elbows touch the patellas.

[0046]   In stage three, the subject's elbows are bent at 90 degrees and the arms are in contact with the abdomen. The subject's hands gripping the opposite elbow. The subject moves forward in a crunching movement until the forearms touch the midthighs.

[0047]   In stage four, the subject's elbows are bent and the arms are in contact with

the chest. The subject's hands grip the opposite shoulder. The subject moves forward in

a crunching movement until the elbows touch the midthighs.

[0048]   In stage five, the subject's arms are crossed behind the head. The subject's

hands are gripping the opposite shoulder. The subject moves forward in a crunching

movement until the chest touches the thighs.

[0049]   In stage six, the subject's arms are crossed behind the head with the

subject's hands holding a 2.5-kg weight plate. The subject moves forward in a crunching

movement until the chest touches the thighs.

[0050]   In stage seven, the subject's arms are crossed behind the head with the

subject's hands holding a 5-kg weight plate. The subject moves forward in a crunching

movement until the chest touches the thighs.

[0051]   The 25-meter sprint test is a test that measures the subject's sprint time

over a distance of 25 meters.

[0052]   The one-turn agility run test is a test that measures the subject's time to

perform one turn or change of direction. A stopwatch may be used to perform the test.

The subject stands just behind a start line. At the command of the tester the subject

sprints 15-meters to a marked line and changes direction 180 degrees and then sprints an

additional five meters. The tester stands at a line five meters in front of the line where

the subject will change direction and 10 meters from the start line. The tester determines

the total time it takes the subject to sprint from five meters in front of the line at which

the subject changes direction, time to change direction and sprint five meters back to the

tester.

[0053]   The cardiovascular endurance test is a test that measures the level and the

shuttle number completed using a 20-meter shuttle run test CD. There may be a total of

22 levels and 10 shuttles. The test involves the subject jogging and then running back

and forth between two lines 20 meters apart at successively faster paces. The test pace is

determined by beeping sounds. The time between each beep decreases and so running

speed correspondingly increases. The subject is allowed to warm up by running and

stretching prior to the test. Starting the test at level 1, the subject must always place one

foot on or behind the lines at the sound of each beep. If a subject fails to reach a line at

the sound of a beep they are warned the test will be stopped. When a subject fails to

reach 2 successive lines at a beep the test is terminated. After completing the test, the

subject cools down by walking slowly.

[0054]   In accordance with one embodiment of the present invention, the

psychological tests may include personal preferences and interests tests. The

psychological tests may be designed to measure the concentration level, confidence level,

control skills, commitment level, leadership skills, adaptability skills, and socialization

skills by subjecting the person to a questionnaire. The questionnaire may include several

redundant questions for accuracy purposes. Such psychological tests may be conducted

independently from the physical activity and physiological tests. Accordingly, the

analysis based on the results of the physical and physiological tests may also be

conducted independently from the results of the psychological tests. The psychological

testing may be optional and additionally performed to further extensively evaluate the

person's physical ability. For example, a subject who has demonstrated a physical

aptitude of a swimmer may be afraid of the water.

[0055]   In accordance with another embodiment of the present invention, the

above tests may be conducted in many other ways. For example, the subject may be

subjected to fewer tests and/or shorter tests that would be still representative of the

aptitude of the subject. However, the accuracy of the analysis may increase with the

number of tests and length of each test.

[0056]   Those of ordinary skill in the art will appreciate that the above-specified

tests are not intended to be limiting and that other tests can be used without departing

from the inventive concepts herein disclosed. The accuracy of the present invention

increases with the number of different tests and the repetition of a single test. However,

for economic and practical reasons, a limited number of tests has been selected. In

accordance with one embodiment of the present invention, such limited number of tests

should be conducted within, for example, 90-120 minutes.

[0057]   After the person is subjected to the tests at 402, the tests results and/or the

other variables are compared with a database at 404. The database includes the results of

the same or similar tests described above subjected on a set of athletes from different

sports, sports positions, discipline or physical activities. For example, the physical

activities may include sports such as football, basketball, track and field. In accordance

with one embodiment, the database may further include the results of the same or similar

tests applied to the athletes in specific positions within the same sport. For example, the

database may store the results of the tests subjected on a basketball center, or a basketball

guard.

[0058]   After the subject's tests results and other variables based on the subject are

compared with the database at 404, a specific physical activity with tests results in the

database closest to the subject's tests results is identified at 406. In accordance with one

embodiment of the present invention, the data are displayed in a plot on a graph or other

visual display along with the results of the same or similar tests on the set of athletes

from different sports, sports positions, discipline, and physical activities. The

comparison may also include the other variables based on the subject. For example, other

variables may include the siblings' heights of the subject. The data (the subject's test

results and the other variables) during the comparison step in 404 are scaled for

comparison purposes. The identification may be accomplished by selecting the plot of

the average results of a set of athletes from a specific physical activity that most closely

matches the plot of the subject's data. This is illustrated in more detailed in FIGS. 6 and

7.

[0059]   In accordance with another embodiment, the subject may also receive a

report showing a graph or other visual display explaining which sports, sports positions,

discipline, or physical activities, the subject has more aptitude for based on the tests

results and the above identification. The report may also show which sports, sports

positions, discipline, or physical activities for which the subject has less aptitude. For

example, the report may list three sports with which the subject may be more compatible,

and three sports with which the subject may be less compatible.

[0060]   FIG. 5 is a table illustrating an example of test results on a set of athletes

in four different physical activities with a subject's test results in accordance with one

embodiment of the present invention. The following tests are listed in the first column:

RHR, Height, Weight, Concentration Test, Wobble Board Test, Hand Speed-

Coordination Test, Grip Strength Test, Standing Height Test, Vertical Jump Test,

Standing Long Jump Test, Sit and Reach Test, Foot Speed-Coordination Test, Pull-up

Test, Abdominal Strength Test, 25-meter Sprint Test, One Turn Agility Run Test,

Skinfold Tests, Body Composition Test, Bone Diameters Tests, Muscle Girth Tests,

Limb Lengths Tests, and Cardiovascular Endurance Test.

[0061]   The second column indicates the horizontal labels on FIGS. 6 and 7.

[0062]   The third and fourth columns illustrate respectively the minimum and

maximum possible measurement for each test. For example, the minimum RHR may be

20 heartbeats within one minute while the maximum RHR may be 100 heartbeats within one minute.

[0063]   The fifth and sixth columns illustrate respectively the median or average raw data obtained from the test and the median or average scaled results of a set of sprinters. For example, the average sprinter may have a RHR of 65 heartbeats within one minute. The scaled results using the minimum and maximum in columns two and three is 44%.

[0064]   The seventh and eighth columns illustrate respectively the median or average raw data obtained from the test and the median or average scaled results of a set of distance runners. The ninth and tenth columns illustrate respectively the median or average raw data obtained from the test and the median or average scaled results of a set of weightlifters. The eleventh and twelfth columns illustrate respectively the median or average raw data obtained from the test and the median or average scaled results of a set of basketball centers.

[0065]   The thirteenth and fourteenth columns illustrate respectively the raw data obtained from the test and the scaled results of a subject such as a 10-year-old boy.

[0066] ·   FIG. 6 is a graph illustrating an example of the median or average tests results of a set of sprinters, long distance runners, weightlifters, basketball centers from FIG. 5, in accordance with one embodiment of the present invention. The scaled results

of the different athletes from the sixth, eighth, tenth, and twelfth columns are plotted on the graph. The vertical axis represents the scaled results in terms of percentage. The horizontal axis represents each test as described above with each corresponding label from the second column of FIG. 5.

[0067]   FIG. 7 is a graph illustrating an example of a correlation between the results of a test subject and a set of sprinters in accordance with one embodiment of the present invention. The scaled results of the subject from column 13 are plotted on the graph along with the scaled results of an identified set of athletes with close or similar test results. The vertical axis represents the scaled results in terms of percentage. The horizontal axis represents each test as described above with each corresponding label from the second column of FIG. 5. In the present example, the 10-year-old boy has more aptitude to become a sprinter based on the results of his test than to become a long distance runner, weightlifter, or basketball center.

[0068]   While embodiments and applications of this invention have been shown and described, it would be apparent to those skilled in the art having the benefit of this disclosure that many more modifications than mentioned above are possible without departing from the inventive concepts herein. The invention, therefore, is not to be restricted except in the spirit of the appended claims.

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